

2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT
INVASIVE SPECIES SUMMARY

Created by: Environmental Institute of Houston, University of Houston-Clear Lake
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Common Name: Peacock cichlid, pavon, tucunare, tuc, peacock bass, butterfly peacock bass, tucunare comun, eyespot cichlid, lukanani
Latin Name: <i>Cichla ocellaris</i>
Category: Aquatic Animal
Place of Origin: Tropical America. "Although the genus <i>Cichla</i> is widespread in the Amazon and Orinoco basins of South America, the true <i>Cichla ocellaris</i> apparently is restricted to the Guianas (Kullander 1986; Kullander and Nijssen 1989) (http://nas.er.usgs.gov/fishes/accounts/cichlida/ci_ocell.html)."
Place of Introduction: Southeastern Florida. "Populations intentionally introduced into Texas by the Texas Fish and Wildlife Department, have not persisted (Howells and Garrett, 1992) (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html)."
Date of Introduction: 1964 (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html).
<p>Life History: "Reproduction and Fecundity: The peacock bass is a biparental substrate spawner, spawning approximately 2000-3000 eggs per brood (Schroeder and Zaret, 1977; Shafland, 1995). Breeding pairs guard their clutch for approximately nine weeks, at which time the fry move from open waters to areas rich vegetation along banks (Schroeder and Zaret, 1977). As is the case with most cichlids, breeding pairs are highly territorial and aggressive (Zaret and Paine, 1973).</p> <p>Growth: Provided with sufficient food, fish may grow to 250-300 mm and attain sexual maturity in under 12 months (Shafland, 1996). Males are larger than females (Shafland, 1995) (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html)."</p>
Growth/Size: 70 cm TL
<p>Feeding Habits/Diet: "Peacock bass are piscivorous. They feed during the day, remaining inactive at night. Prey is caught typically through high speed pursuit, as opposed to the ambush tactic which most native piscivorous Centrarchids employ (Erdman in Shafland, 1995). In Barro Colorado island, Panama, where peacock bass are also non-indigenous, fish consumed include atherinids, poecilids, characids, eleotrids and other cichlids (Zaret and Paine, 1973). In Florida, spotted tilapia, <i>Tilapia mariae</i>, appear to be the primary prey item, typically compromising up to 75% of their stomach content (Shafland, 1993, 1995). Mozambique tilapia, <i>Oreochromis mossambicus</i>, and bluegill, <i>Lepomis macrochirus</i> also constitute major prey items (Shafland, 1993) (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html)."</p>
<p>Habitat: "Salinity Tolerance: This species occurs primarily in freshwater. An upper salinity tolerance of 18 ppt, experimentally determined, has been reported (Shafland, 1993, 1995).</p> <p>Temperature Tolerance: This species is less tolerant to cold waters than most other tropical cichlids. Swingle (1966) reported a lower lethal temperature, under experimental conditions, of 16°C for fingerlings 80 mm in length. Guest et al. (1979) reported a lower lethal temperature of 15.6°C and a higher lethal temperature of 37.9°C for fingerlings between 85 and 140 mm TL. Some fish survived to 13.5°C, when salinity was raised to 10 ppt (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html)."</p>
<p>Attitude (aggressive, etc.): "Potential Impacts: Presently peacock bass are established only in highly modified drainage canals and lakes of southern Florida, in which they feed primarily on non-native fish (Shafland, 1996). They are limited in their potential range expansion northward, by their inability to tolerate water temperatures below 15°C. However, peacock bass have been described as voracious piscivores capable of greatly modifying ecosystems where introduced. Shafland (1993) reported a 25% decline of forage fish from canals in which peacock bass have been introduced. Shafland attributed this mainly to the decline of spotted tilapia, <i>Tilapia mariae</i>. He estimated a reduction in spotted tilapia, of approximately 51 kg/ha (40%) from 1985-88 and 654 fish/ha (58%) from 1989-1992. Zaret and Paine (1973) documented the results of an introduction of peacock bass into Lake Gutan, Panama. This species dramatically altered the fish composition of the lake, eliminating six of the eight most common native species, and contributing to increase the abundance of previously uncommon species. Zaret and Paine attributed observed changes in species composition throughout the entire ecosystem, to the introduction of peacock bass.</p> <p>However, Shafland (1993, 1995) has reported positive effects of the peacock bass introduction into Florida. This author found a correlation between the abundance of peacock bass and that of native redear sunfish <i>Lepomis microlophus</i> and largemouth bass, <i>Micropterus salmoides</i>, where peacock bass were introduced. He attributed this increase of native fish to the decline of non-indigenous fish on which the peacock bass feeds. Nonetheless, it is clear that this large, piscivorous fish can significantly impact the</p>

environments it inhabits. If peacock bass continue to expand their range throughout southern Florida, faunas of less altered waters, such as those of the Everglades, could be at risk (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html).”

Physical Description: “Peacock bass have elongate bodies with a deeply notched dorsal fin. Their mouth is large, the lower jaw projects beyond the upper jaw. They have a characteristic large black spot encircled by a silver colored halo on their caudal fin. Their coloration is olive-green dorsally fading to yellow-white ventrally, with three dark bars on their sides, between which are a series of dark spots. The first dorsal, upper caudal, and pectoral fins are gray or black, the anal, pelvic and the lower caudal fins are red. White spots are present on the second dorsal and the upper lobe of the caudal fin. Large adults have a yellow-orange stripe which extends from their mouth to their caudal fin. Their iris is red (Page and Burr, 1991) (http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html).”

References (includes journals, agency/university reports, and internet links):

1. http://nas.er.usgs.gov/fishes/accounts/cichlida/ci_ocell.html. USGS Nonindigenous Aquatic Species
2. http://www.gsmfc.org/nis/nis/Cichla_ocellaris.html. Gulf of Mexico Program Non-indigenous species summaries.
3. Kullander, S. O. 1986. Cichlid fishes of the Amazon River drainage of Peru. Swedish Museum of Natural History, Stockholm, Sweden. 431 pp.
4. Kullander, S. O., and H. Nijssen. 1989. The cichlids of Surinam, Teleostei: Labroidei. E. J. Brill, New York, NY.
5. Howells, R. G., and G. P. Garrett. 1992. Status of some exotic sport fishes in Texas waters. Texas Journal of Science 44(3):317-324.
6. Schroder, S.L., and T.M. Zaret. 1979. The adaptive significance of color patterns in *Cichla ocellaris*. Copeia 1979(1):43-47.
7. Shafland, P. L. 1995. Introduction and establishment of a successful butterfly peacock fishery in southeast Florida canals. American Fisheries Society Symposium 15:443-445.
8. Shafland, P.L. 1993. An overview of Florida's introduced butterfly peacock bass (*Cichla ocellaris*) sport fishery. Natura 96:26-28.
9. Zaret, T.M., and R.T. Paine. 1973. Species introduction in a tropical lake. Science 182:449-455.
10. Shafland, P.L. 1996. Exotic fishes of Florida- 1994. Reviews in Fisheries Science 4(2):101-122.
11. Page, L.M., and B.M. Burr. 1991. A Field Guide to Freshwater Fishes North America North of Mexico. Peterson Field Guide Series. Houghton Mifflin and Company. Boston. 432 pp.

Available Mapping Information:

1. http://nas.er.usgs.gov/fishes/accounts/cichlida/ci_ocell.html
2. Historical Distribution of *Cichla ocellaris* in Non-Native Range Gulf of Mexico Program Non-indigenous species summaries. http://www.gsmfc.org/nis/nis/nrange/Cichla_ocellaris_non-native_range.html